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**A Pictorial Guide on the Ovarian Development of the  
Fertile and Sterile Mexican Fruitfly,  
*Anastrepha ludens***

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September 1999**

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United States  
Department of  
Agriculture



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# THE ADULTS

- adult female (7x)

- sterile vs fertile (6x)

The fertile female's abdomen is enlarged with eggs in the ovaries; however, this is not an accurate identification method and should not be used as an identification tool. This is merely an observation.

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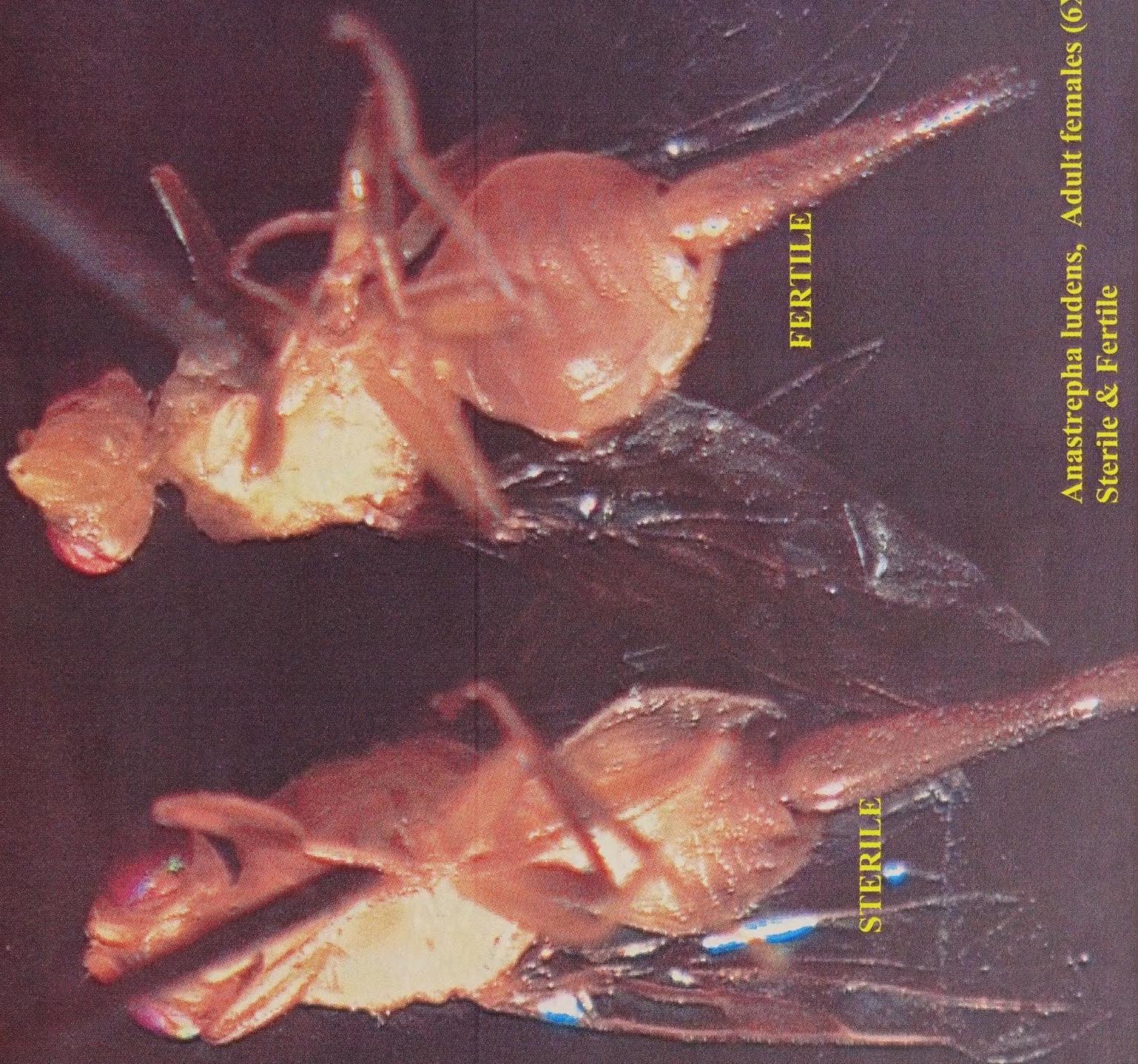




Anastrepha ludens (Loew)  
Adult female (7X)



*Anastrepha ludens*, Adult females (6X)  
Sterile & Fertile





# **SPERMATHECAE**

- non-mated (50x)**

**2 of 3 spermathecae**

**Tissue around these organs can be confused with sperm. Note the difference.**

- mated (200x & 1000X)**

**1 spermatheca showing sperm at the apical end.  
Sperm can also be detected at end of duct(not shown).**

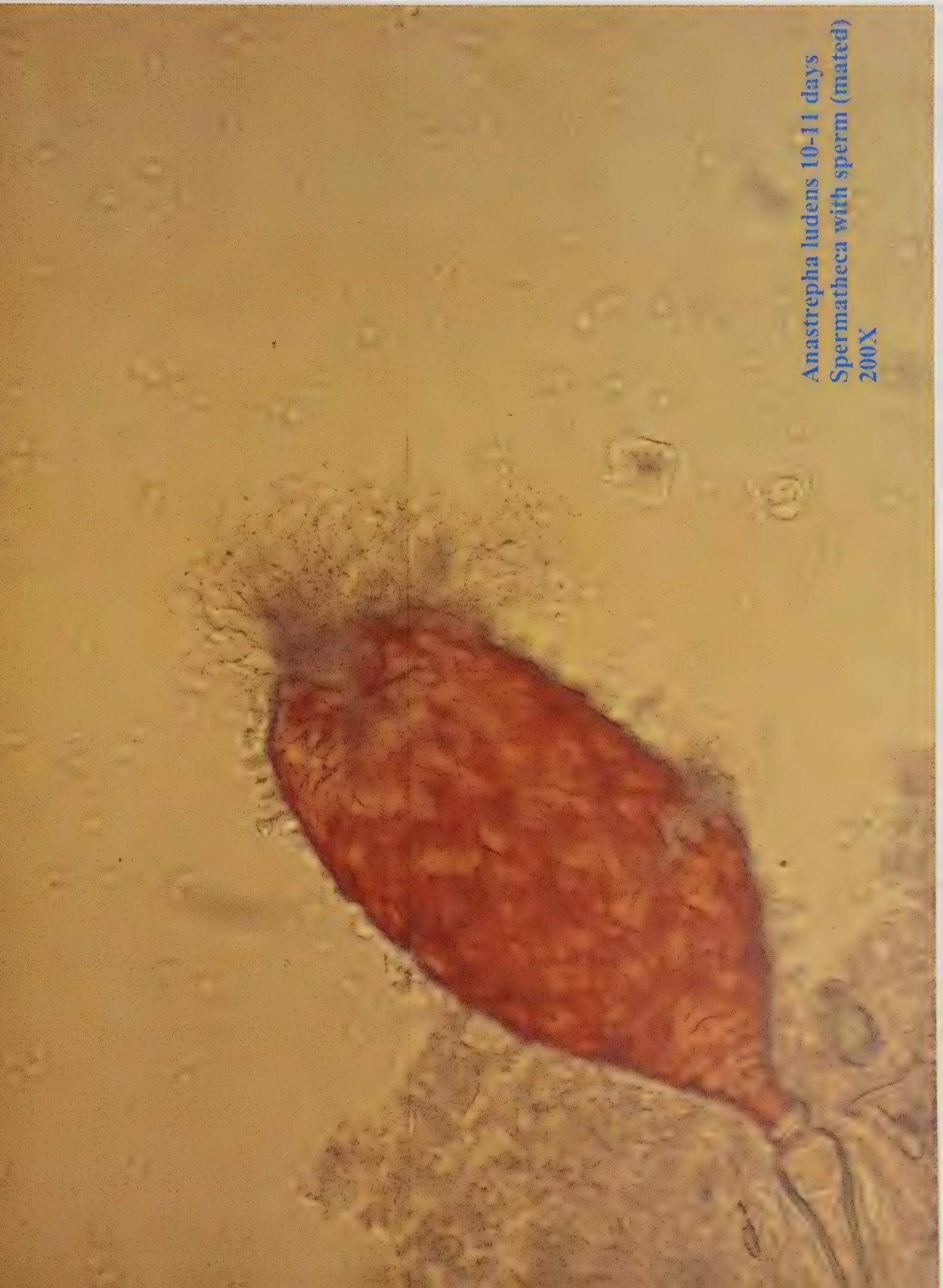


Anastrepha ludens 3-4 days  
2 of 3 Spermathecae, Nonmated (50X)





Anastrepha ludens 10-11 days  
Spermatheca with sperm (mated)  
200X





*Anastrepha ludens* 10-11 days  
Spermatheca with sperm, highly magnified  
1000X (oil)

Sperm (fiber-like structures)

Sperm (fiber-like structures)



# **THE STERILE OVARY**

- 100x**

**Photos of 2 separate flies. The ovaries on 2nd fly appear more organized.**

- 1000x**

**Upon magnification of 2nd ovary, no definite structures were detected.**

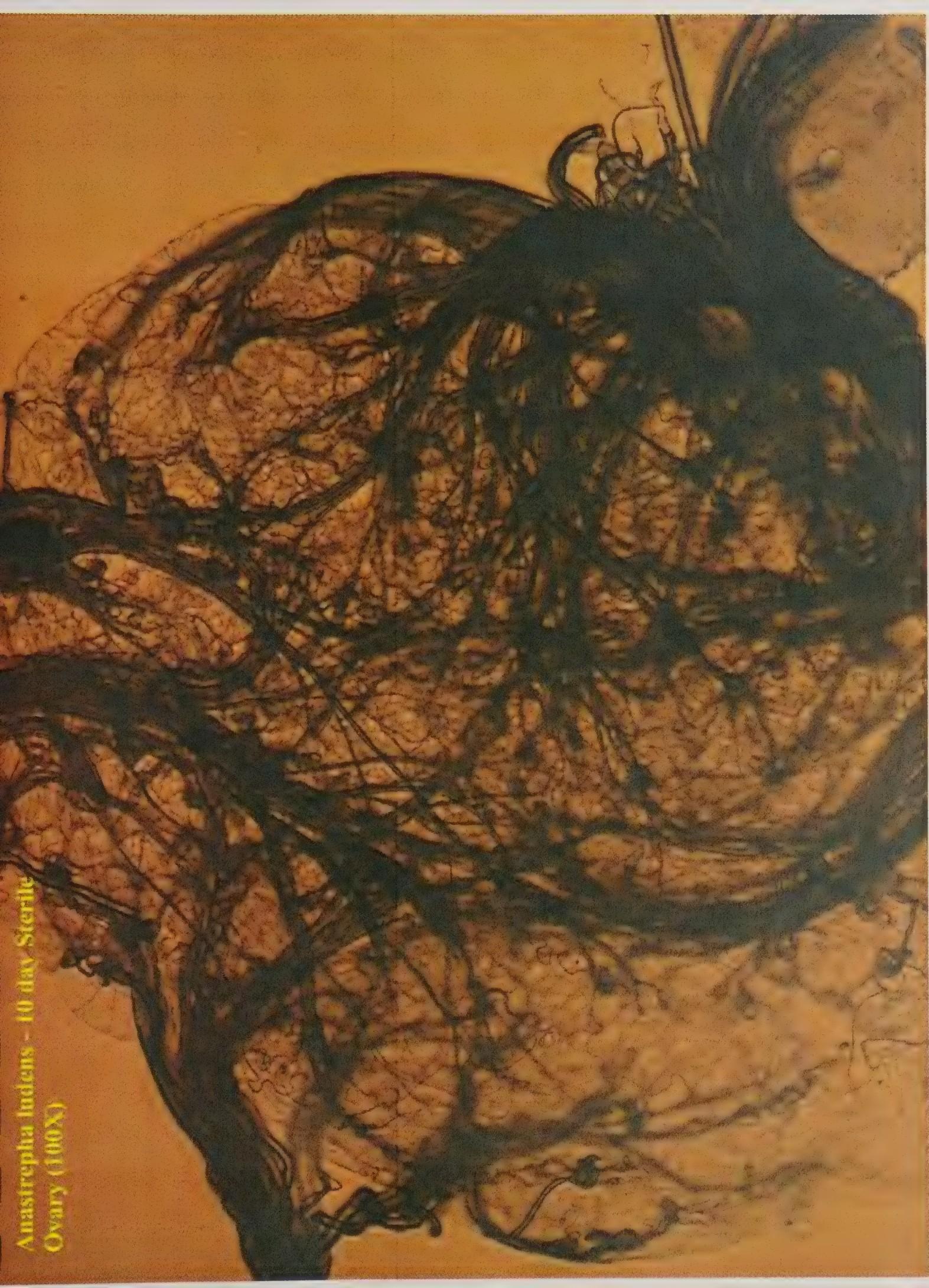


*Anastrepha ludens* 10-11 days  
Ovary with spermathecae (100X)  
Sterile female

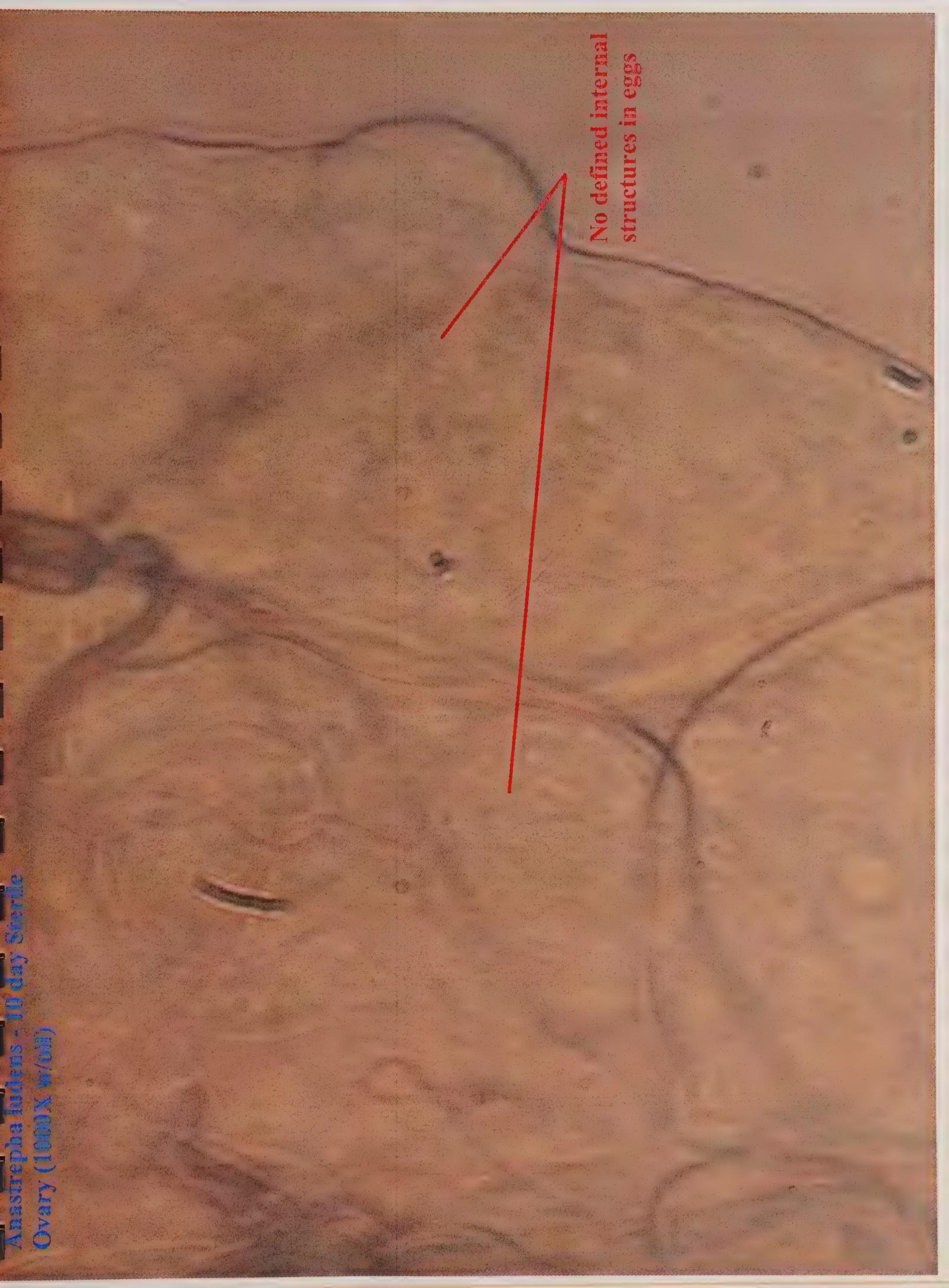




*Anastrepha ludens* - 10-day Sterile  
Ovary (100X)







No defined internal  
structures in eggs



# **THE FERTILE OVARY**

- 2 to 3 days (50x)**

This ovarian stage is the most commonly confused for a sterile fly.

- 3 to 4 days (40x)**

The reproductive organs are as they appear upon dissecting the abdomen. (Orientation Photo)



*Anastrepha ludens* 2-3 days  
Ovaries & spermathecae (50X)

Spermathecae

Ovaries



*Anastrepha ludens* 14 days  
Ovaries & 1 spermatheca (0%)

Ovary

Ovary

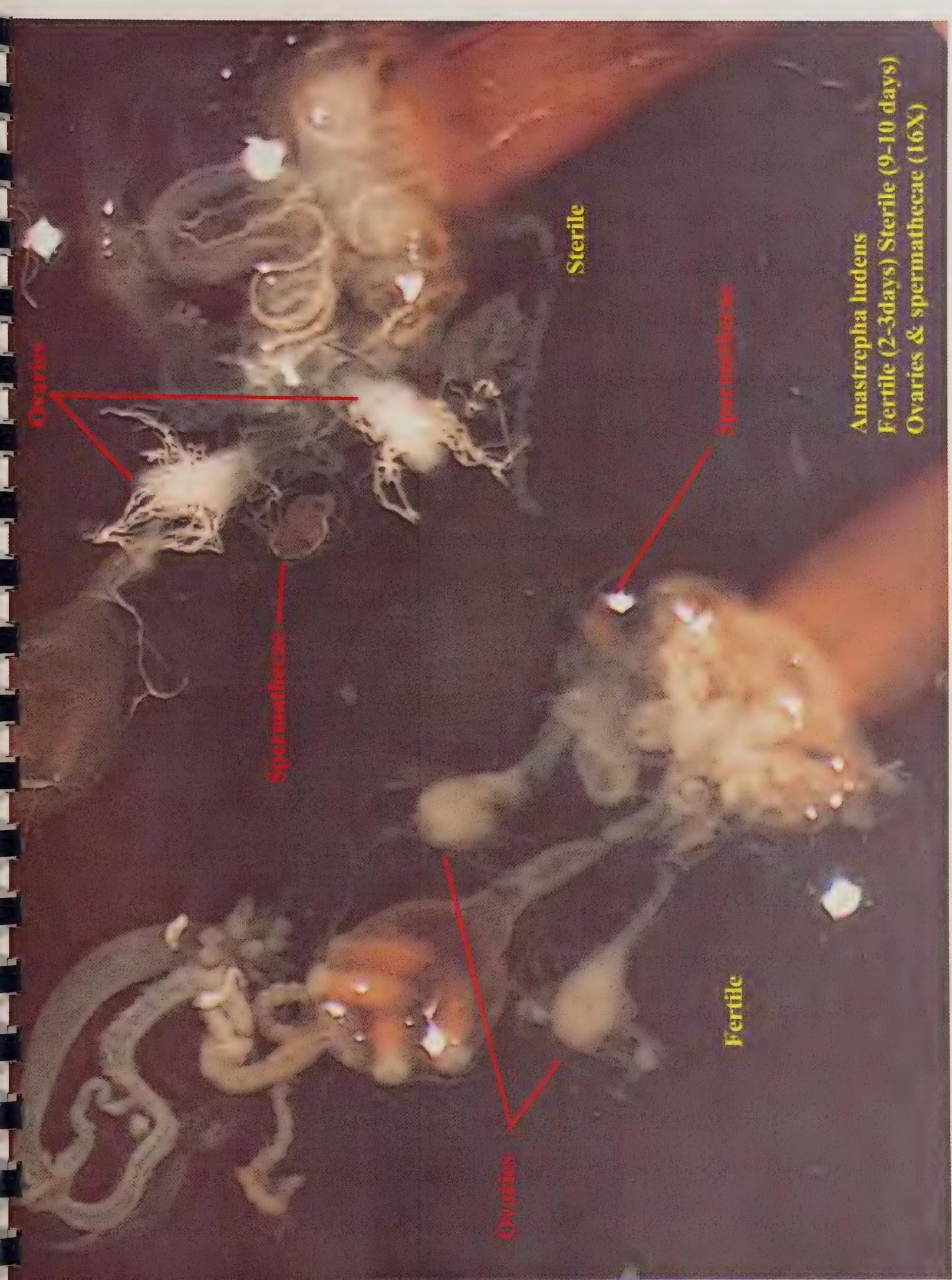
Spermatheca



# A COMPARISON OF FERTILE AND STERILE OVARIES

- 2 to 3 days (16x)
- 3 to 4 days (16x)
- 4 to 5 days (16x)
- 5 to 6 days (16x)
- 10 to 11 days (16x)
- 21 days (12x)
  - All sterile ovaries are at the age of release or older (7-10 days).







*Anastrepha ludens*  
Fertile (3-4 days) Sterile (9-10 days)  
Ovaries & spermathecae (16X)





*Anagrepha ludens*  
Fertile (4-5 days) Sterile (9-10 days)  
Ovaries & spermathecae (16X)

Ovaries

Sterile

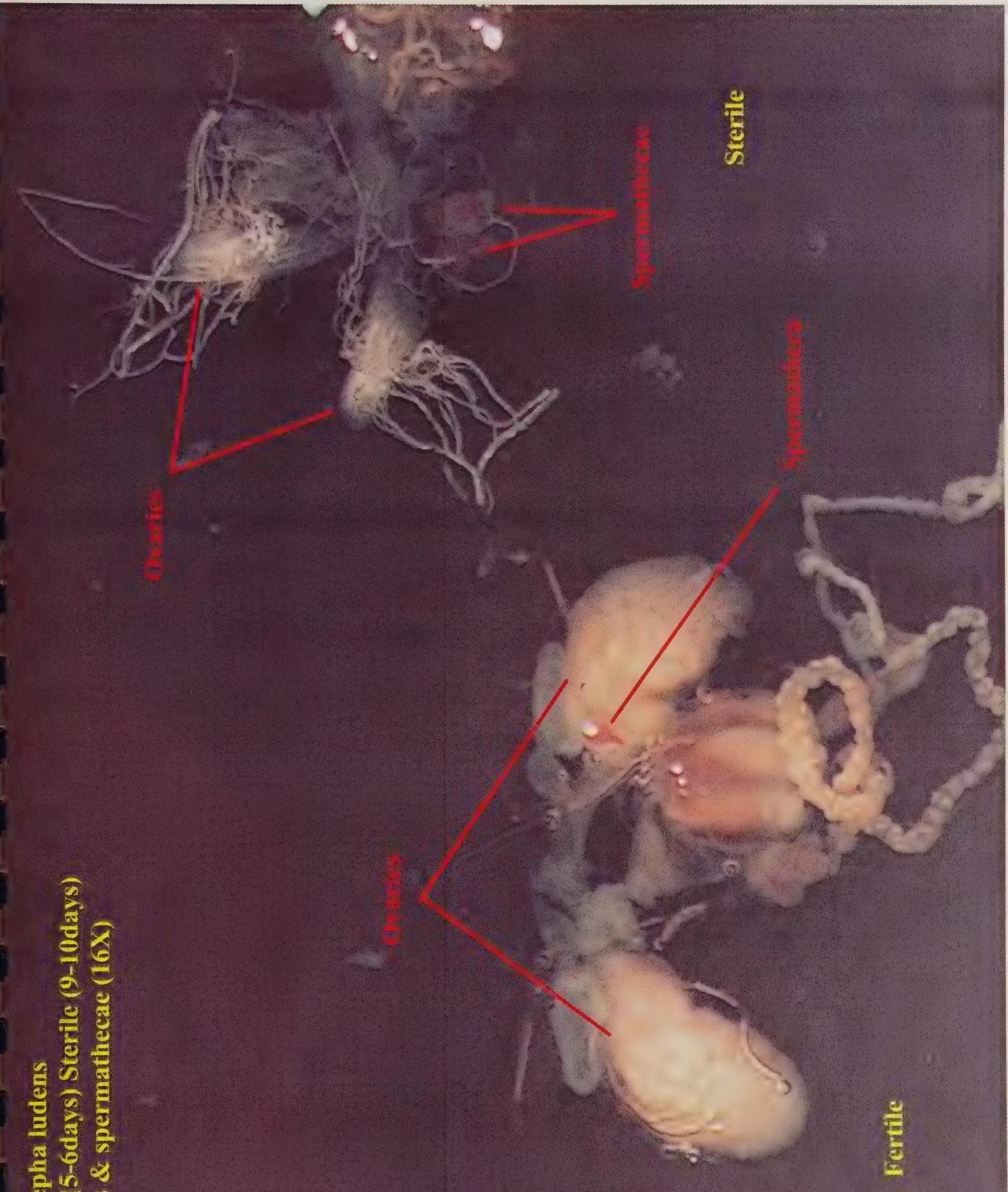
Spermathecae

Fertile

Ovaries



*Anastrepha ludens*  
Fertile (5-6 days) Sterile (9-10 days)  
Ovaries & spermathecae (16X)





Sterile

Sterile

Fertile

Fertilized

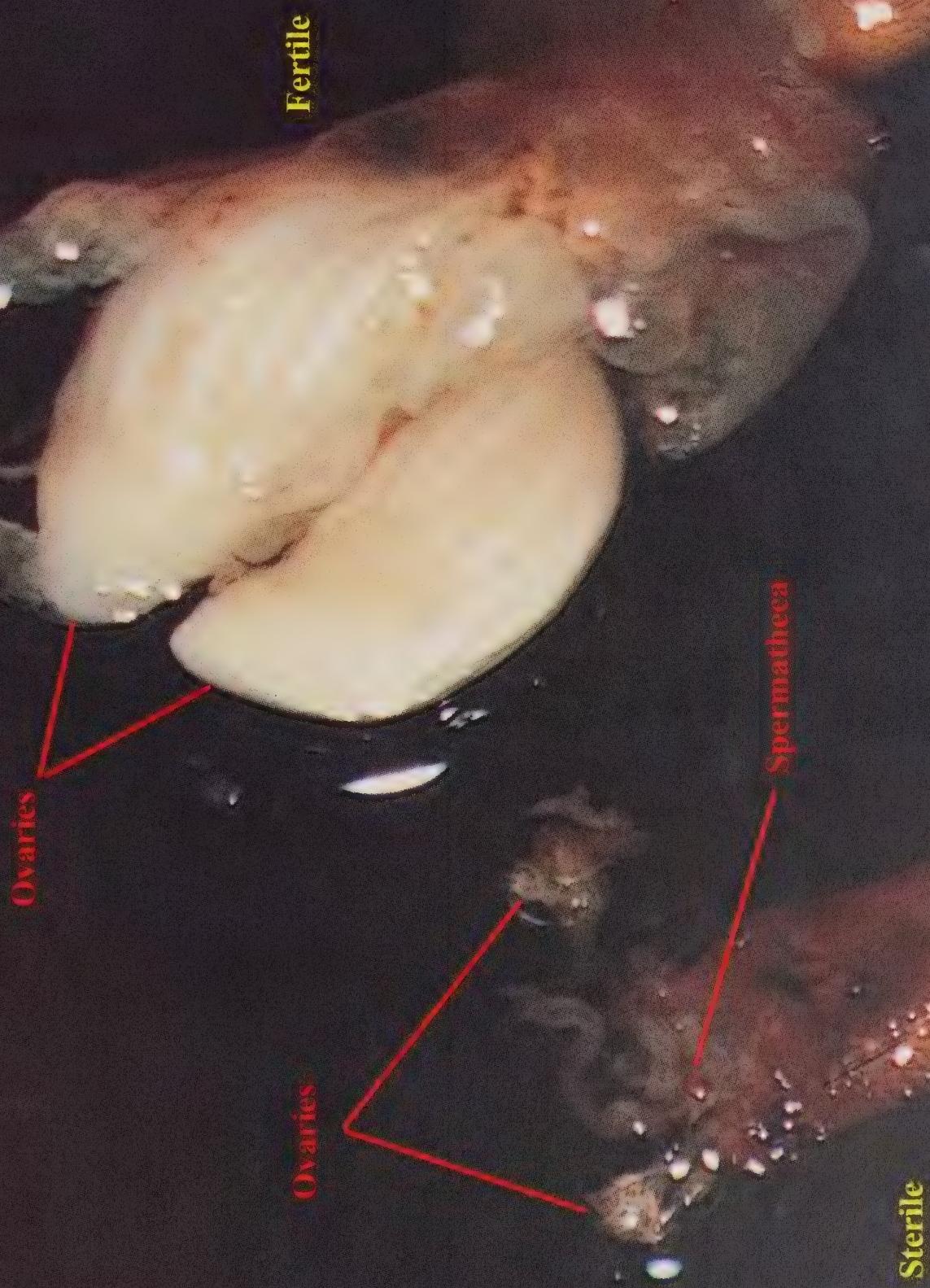
Ovaries

Ovaries

Anastrepha ludens  
Fertile(10-11 days) Sterile (9-10 days)  
Ovaries & spermathecae (16X)



*Anastrepha ludens*  
Ovaries & spermatheca (12X)  
Sterile vs. Fertile

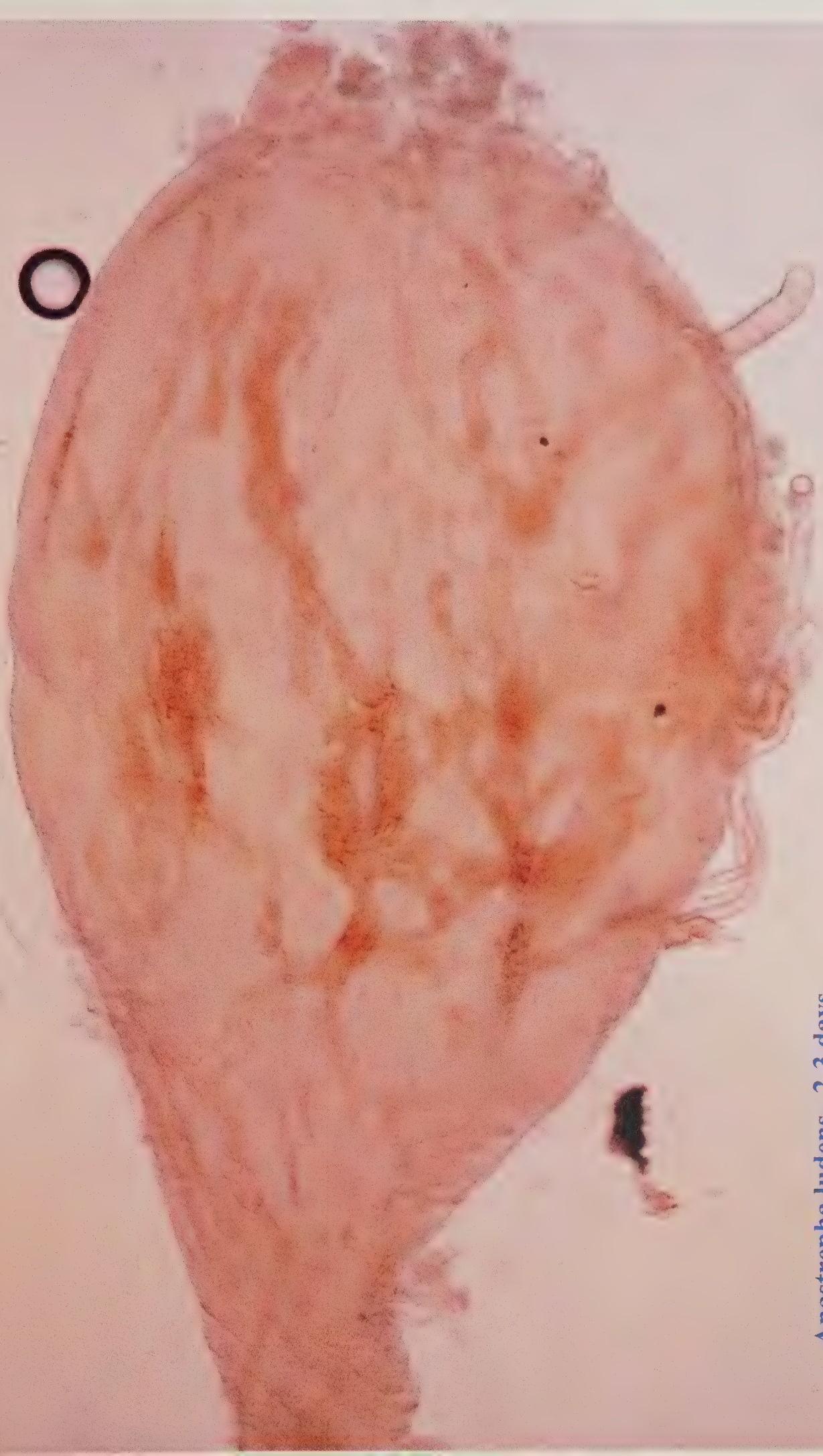




# A CLOSER LOOK AT FERTILE OVARIES

- 2 to 3 days (100x)
- 4 to 5 days (50x and 100x)
- 5 to 6 days (50x and 200x)
- 10 to 11 days ( 50x and 100x)





*Anastrepha ludens* 2-3 days  
Ovary (100X)



*Anastrepha ludens* 4-5 days  
Ovary (50X)





*Anastrepha ludens* 4-5 days  
Ovary (100X)



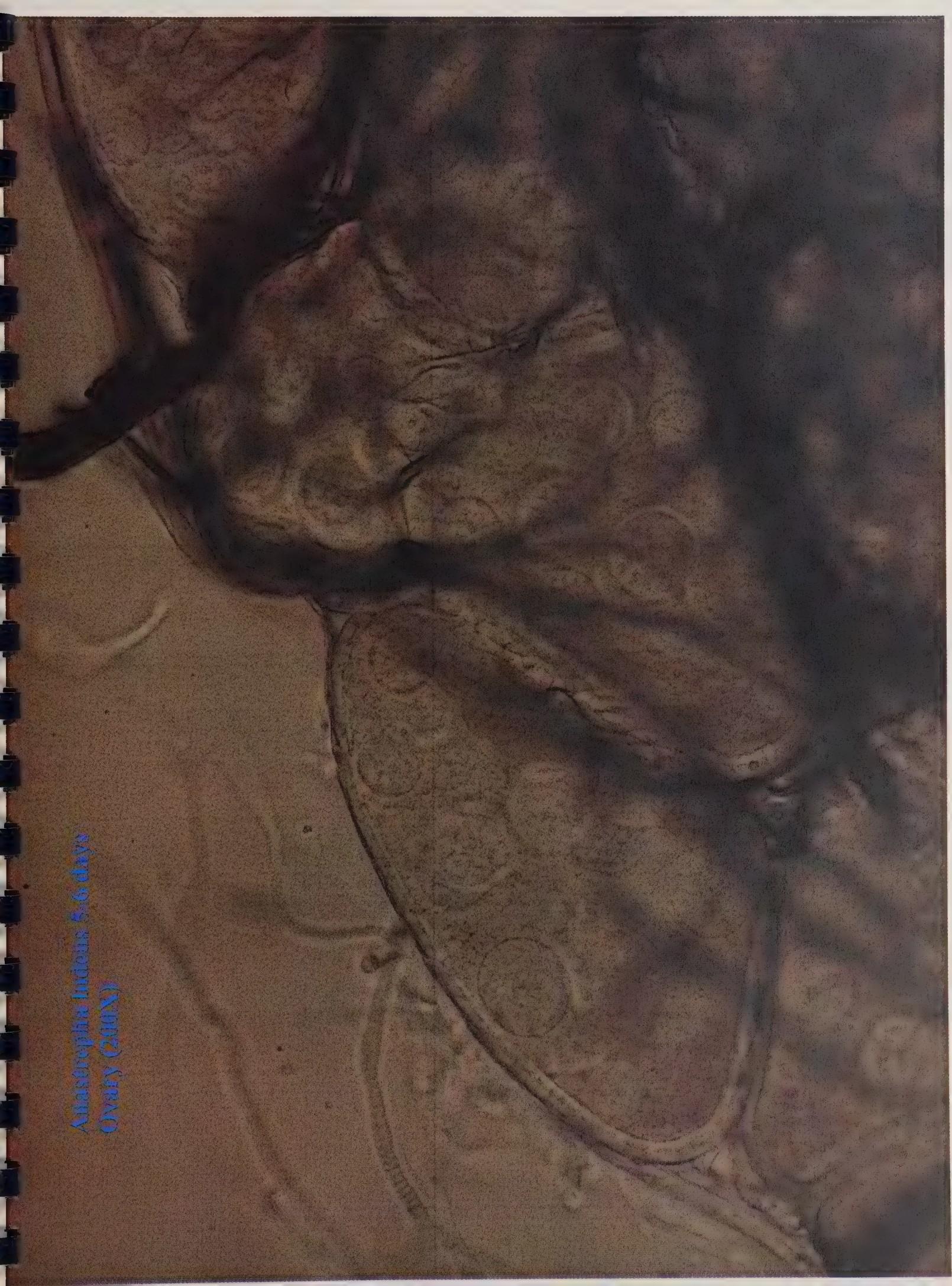


*Anastrepha ludens* 5-6 days  
Ovary (50X)



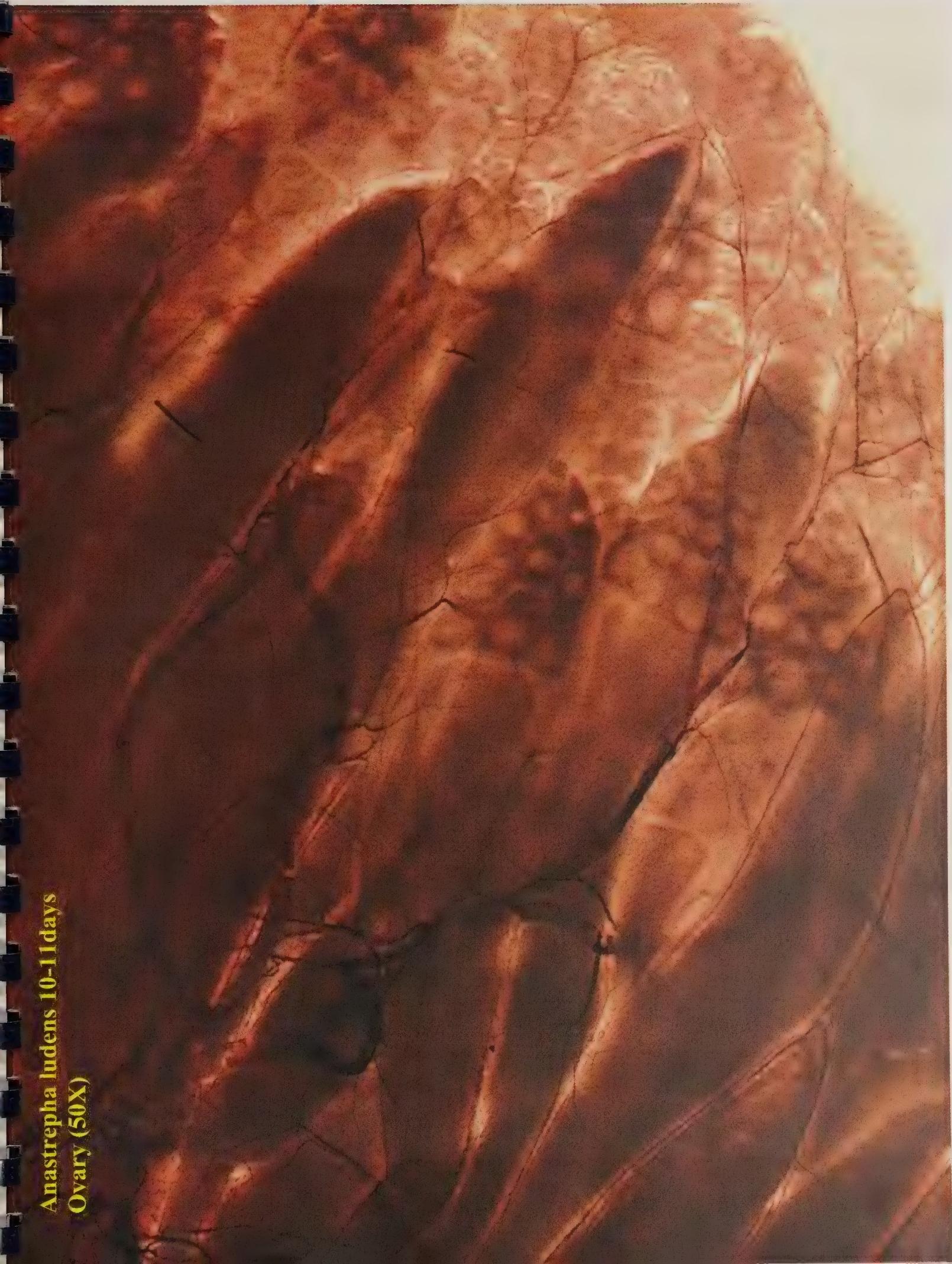


*Allastrepha lindensis* 5-6 days  
Ovary (20mN)





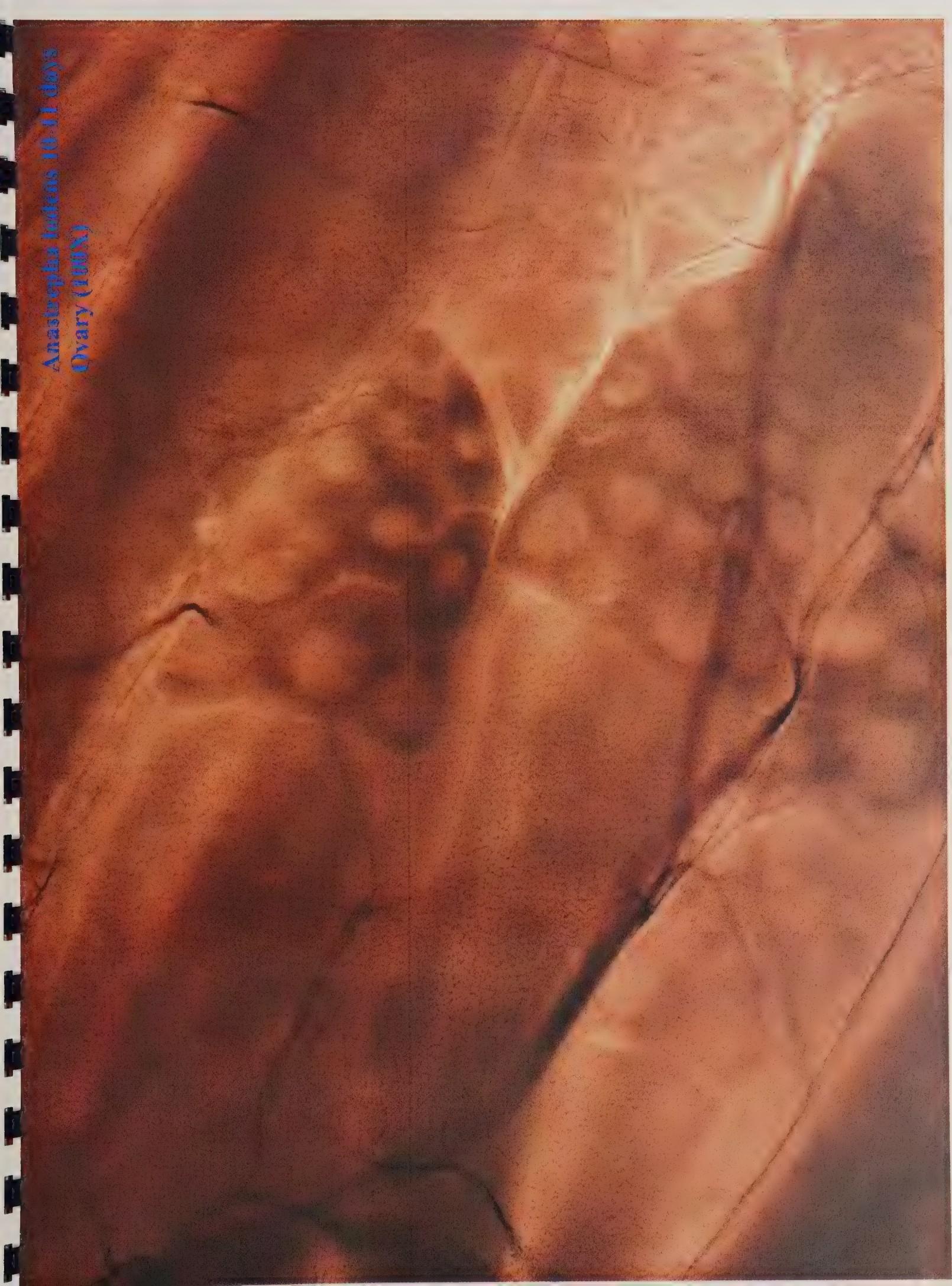
*Anastrepha ludens* 10–11 days  
Ovary (50X)





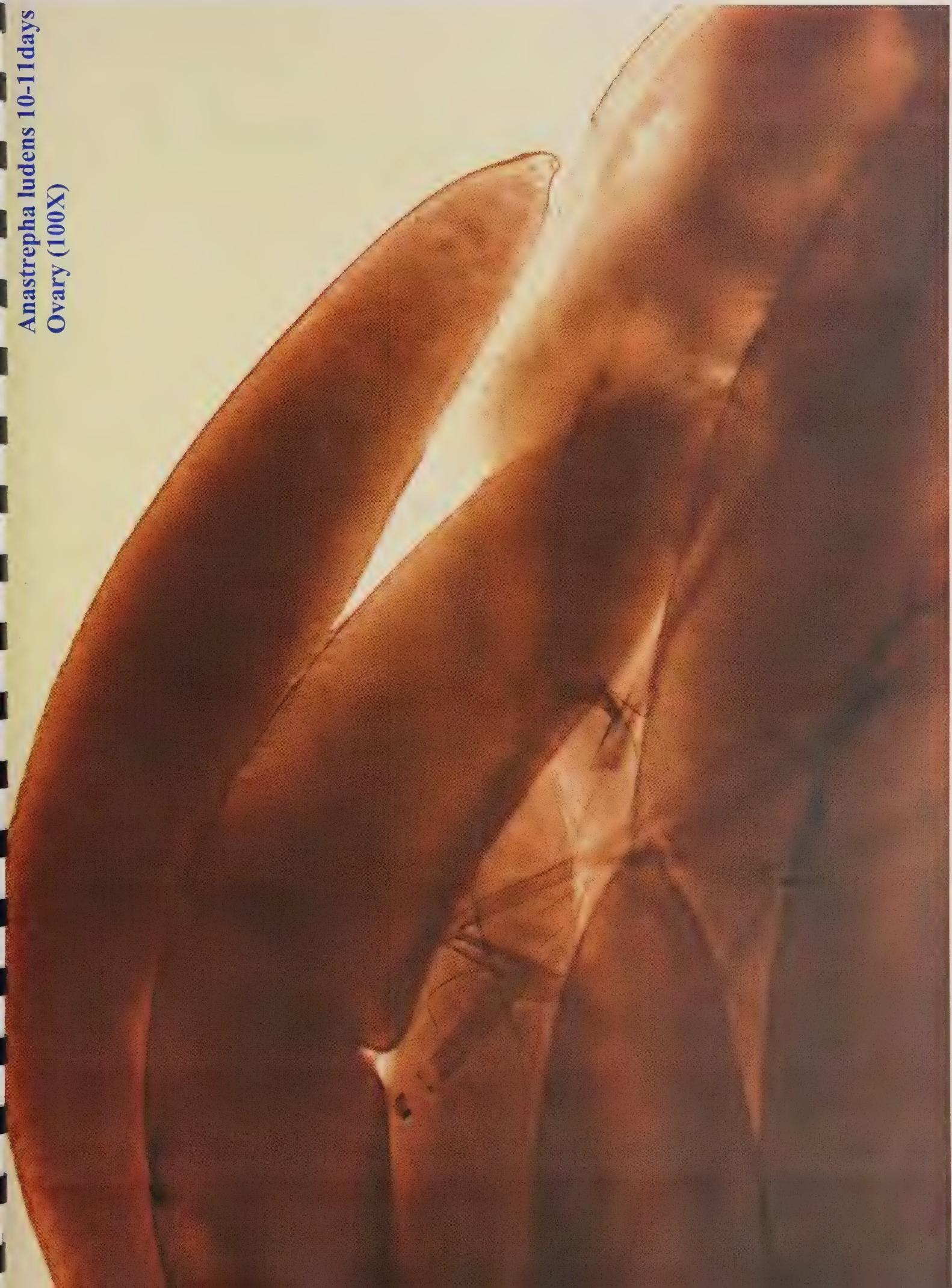
*Anastrepha ludens* 10 (11 days)

Ovary (100X)





*Anastrepha ludens* 10-11 days  
Ovary (100X)





# VARIATIONS IN MATURE EGGS

- **individual (50x)**  
(outside the ovary)
- **several (50x)**  
(outside the ovary)
- **multiple (50x)**  
(in the ovary)





*Anastrepha ludens* - 21 days  
Mature Ovum (50X)



*Anastrepha ludens* - 21 days  
Mature Eggs (50X)





*Anastrepha ludens* - 21 days  
Ovary with mature eggs (50X)





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